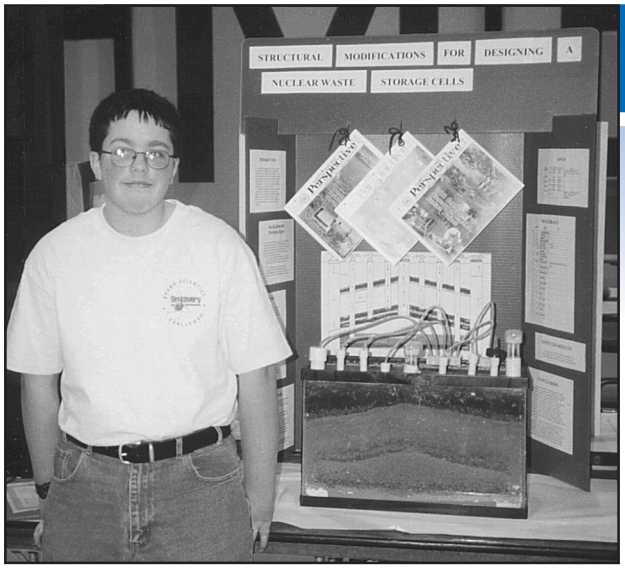

Brandon Williams, a student at Redlands Middle School in Grand Junction, won prizes and praises for his science fair entry.

GJO Nurtures Student's Interests in Science

Science fairs. To some middle school and high school students that phrase brings on a sense of dread or panic. But to others, it means an opportunity to really delve into an area of scientific fascination.

That's what the 2000 Western Colorado Science Fair meant to one eighth grade student from Redlands Middle School in Grand Junction, Colorado. Brandon Williams' science fair project was entitled "Structural Design Modifications for Nuclear Waste Storage Cells." During creation of his project, Williams met with Jody Waugh, a research scientist for the U.S. Department of Energy Grand Junction Office (DOE–GJO) contractor MACTEC Environmental Restoration Services (MACTEC–ERS). Waugh has worked on innovative cover designs for storage or disposal cells located in different parts of the United States.

Williams studied various low-level nuclear waste storage designs, including the one DOE–GJO used to construct the Monticello, Utah, disposal cell. He identified alternative design modifications that address two key concerns with waste containment: (1) penetration of moisture in the cell layers and (2) accumulation of waste gas that may develop as nuclear waste decays. In his cover design and the small-scale model he constructed for the science fair, Williams angled the cell layers so that the highest point was in the center of the cell. He sloped the layers downward so that any moisture entering the top of the cell would be redirected to collection pipes. Pumps continuously force air through the collection pipe system in and under the cell to enhance evaporation of moisture. Air scrubbers connected to exhaust pipes could remove radon gas from the air before it is released to the atmosphere. "I was impressed with the way Brandon thought through the idea, researched the options, and came up with a feasible alternative cover design," said Waugh.

Williams' project earned him a finalist position in the Redlands Middle School science fair. He was then eligible to enter the Western Colorado Science Fair, a regional science fair held in March 2000 at Mesa State College in Grand Junction. Williams was again a finalist in the junior category and went on to compete in the Colorado State Science Fair held in Fort Collins in April. Although he did not place at the state level, Williams commented, "Just getting to go to the state competition was a great experience." Williams received many laudable comments from the judges.

Williams also won a special science award from DOE–GJO at the regional fair. "Williams' project impressed us because it so closely paralleled DOE activities," said Vernon Cromwell, the DOE–GJO Project Manager who presented award certificates to Williams and another middle school student, Jared Farnsworth, from Paonia Middle School, in Paonia, Colorado. "New technologies and concepts are very attractive to DOE and fresh thinking like these students demonstrated should be encouraged," said Cooper Wayman, another DOE–GJO science fair judge.

The Western Colorado Science Fair attracted 185 junior-level (grades seven and eight) entries and 40 senior-level (grades nine through twelve) entries from 13 counties on the Western Slope. The top 10 junior entries and the top 6 senior entries competed in the state competition.

Twelve DOE and contractor employees volunteered as judges at the 2000 science fair. “I was personally very impressed with not only the quality of the judging but also the professional manner in which the judging was accomplished,” wrote Forbes Davidson, former co-director of the Western Colorado Science Fair. For the third year, DOE–GJO contractor *WASTREN, Inc.,* was a co-sponsor of the fair. *WASTREN, Inc.,* contributed $500 to the fair and awarded junior and senior division environmental sciences certificates and checks.

During his spring break from school, Williams and his father, Dave Williams, requested a tour of the GJO laboratories. Ron Chessmore, a *WASTREN, Inc.,* employee and Laboratory Manager for the Analytical Chemistry Laboratory, and Sarah Morris, a MACTEC–ERS scientist in the Environmental Sciences Laboratory, explained the projects being worked on, the laboratory and computer equipment used, and the types of analyses being performed in the laboratories. “Brandon was obviously very interested in science, especially chemistry,” said Morris. “I hope the tour helped shape his career goals in some area of science.”❖

S.N.A.R.F. Science Camp (continued from page 28)

comments. One parent wrote, “Every day was packed with activities. I kept thinking, how will they top this tomorrow? But each day had a full and exciting agenda.”

This was the first S.N.A.R.F. Science Camp to be conducted in Grand Junction. The camp originated 2 years ago in a small town in south-central Idaho and was a success. DOE–GJO plans to make the camp an annual event and possibly offer more than one session based on the long waiting list for last year’s camp.❖

The molecular structure of a compound fascinates a student at the S.N.A.R.F. Science Camp.

Computer Donations (continued from page 29)

donated equipment must apply through the S.E.E.D.S. Program main office in Pueblo, Colorado.

This is the first time DOE–GJO has coordinated its computer donation through S.E.E.D.S. “DOE is pleased to learn about the S.E.E.D.S. Program, which provides us with a simplified way to excess our equipment and still have it go to needy schools and qualifying organizations throughout Colorado,” said Audrey Berry, DOE–GJO Public Affairs Specialist.

In addition to the equipment donated to the local school district, AIMTech also donated 17 computer systems, 3 laptops, and 7 printers through S.E.E.D.S. to the Rocky Mountain School of Expeditionary Learning in Denver, Colorado.❖